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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,078

11/21/2003

Shanti A. Cavanaugh

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EXAMINER

VU, PHU

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/719,078	Applicant(s) CAVANAUGH ET AL.	
	Examiner Phu Vu	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/19/04</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed have been fully considered but they are not persuasive. Applicant has argued that the invention distinguishes over the prior art in that the applicant's device is a tunable filter wherein it maintains wavelength stability in response to temperature changes. However the limitation of being a tunable filter does not necessarily imply any type of temperature insensitivity (which is not claimed). The reference teaches a narrow band power splitter (filter) with tuning capabilities (see claim 4). The center point of the pass band is adjustable therefore the tunable limitation of the claim is met.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 2, 4, 6-12, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Singh US 6385217.

Regarding claim 1, Singh teaches a wavelength locker system, comprising, an optical tap placed in the optical path of a laser (fig. 7 64), for splitting a laser signal into a tapped signal and a laser output signal, a free space tunable filter accepted the tapped signal and producing two signals that add to form a representation of the tapped signal (see fig. 7 element 70), a photodetector (75 and 77) coupled to the tunable filter

for capturing both signals output from the said tunable filter (66) and producing 2 electrical signals that represent the power intensity of each of said two output signals from the tunable filter, and a electronics unit for (68) accepting the two electrical signals output from the photodetector and generating a feedback signal in response thereto.

Regarding claim 10, Singh teaches an optical tap (fig. 7 element 64) placed in the optical path of a laser transmitter for splitting a laser signal into a tapped signal and a laser output signal , a tunable filter (660 accepting the tapped signal and producing two electrical signals that add to form a representation of the tapped signal. The limitation of the filter tuned at an offset from a target lasing frequency at a point in which the two electrical signals output from the tunable filter to form a lock point pertains to a product by process limitation as adds no additional structure to the claim as the tuning point of tunable filter is by definition adjustable and tuning the filter one way rather than another does not affect the overall structure of the device. Singh also teaches the feedback signal in response to the electrical signals output from the liquid crystal (see element 68).

Regarding claim 2, Singh teaches the photodetector are integrated onto the tunable filter (see fig. 7).

Regarding claim 4, Singh teaches the tunable filter being a bandpass filter as any kind of filter can be interpreted as band pass filter since no specified frequency range is specified in the claim. The limitation of reflected signal and transmitted signal is met as the reference discloses the filter to be a narrow band pass filter. Since this

performs a split operation the two signals must be a rejected (reflected) and transmitted (pass) signal.

Regarding claims 6 and 8, Singh teaches the electronics for accepting the two electrical signals output from the photodetector and generating a feedback signal is a microcontroller (see fig. 7 element 68) and this microcontroller controls tuning of the tunable filter through the laser (see fig 7).

Regarding claims 7 and 18, Singh teaches the device can include a temperature sensor to achieve further stability and tenability (see column 8 lines 18-22).

Regarding claim 9, claim 9 pertains to a product by process limitation as adds no additional structure to the claim as the tuning point of tunable filter is by definition adjustable.

Regarding claim 11, Singh teaches the feedback signal is coupled to the laser to form a feedback loop (see element 68).

Regarding claim 12, the limitation of the feedback signal describes the direction and magnitude of the difference between the lock point and the laser lock point is inherent has the sole purpose of a wavelocker is to eliminate difference between the target point and the output. Therefore, this feedback signal controls the laser to minimize this difference therefore, the feedback signal must be based on these values at least indirectly.

Regarding claims 19-20, Singh teaches a method of wavelength locking, including the steps of providing a tunable filter that produces reflected and complimentary transmitted signal outputs (see fig 7 element 66), reading the

temperature of a tunable filter (see column 8 lines 18-22), adjusting the tunable filter (feedback signal between 68 and 62, reading the outputs of the tunable filter (see element 64, 70 and 72/74), and generating a feedback signal in response to information collected in the previous step (see element 68). Singh also includes a division operation as the power tap (64) divides the signal into output and tapped signal.

Claims 3, 5, 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh in view of Patel US 5150236.

Regarding claims 3, 5, 13 and 16, Singh and Patel teaches all the limitations of claims 3, 5, 13 and 16 except the filter being a liquid crystal tunable filter/ etalon. Patel teaches a liquid crystal tunable filter / etalon with an epoxy seal (see column 3 lines 55-60) that achieves an optical band pass filter that can be tuned in a low powered, compact, rugged, and economical structure (see abstract). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply a liquid crystal etalon to achieve low power, compactness, durability, and low cost.

Regarding claims 14, Singh teaches the device can include a temperature sensor to achieve further stability and tenability (see column 8 lines 18-22).

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh in view of Patel in further view of Buchwalter US 6104466.

Regarding claims 15 and 17, Singh teaches all the limitations of claims 15 and 17 except a metal seat or gasket structure surrounding an aperture of the liquid crystal. Buchwalter teaches a metal seal that eliminates gas permeability (see column 5 lines 24-26). Therefore, at the time of the invention, it would have been obvious to one of

ordinary skill in the art to apply a metal seal to eliminate gas permeability between the liquid crystal cavity and outside gases.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

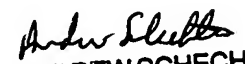
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 2871


ANDREW SCHECHTER
PRIMARY EXAMINER